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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 7590 | 04/07/2004 | | | EXAMINER CHAN, SING P |
| James E. Bradley BRACEWELL & PATTERSON, LLP Suite 2900 711 Louisiana Street Houston, TX 77002-2781 | | | ART UNIT 1734 | PAPER NUMBER |

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|--------------------------------|-------------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/898,633 | SCHMIDT, RONALD P. |
| | Examiner Sing P Chan | Art Unit 1734 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 20 February 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 3,14 and 20-23 is/are allowed.
- 6) Claim(s) 1,2,4-13 and 15-19 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 02 July 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
- (f) he did not himself invent the subject matter sought to be patented.

2. Claims 1, 4, 5, 8, 9, and 12 are rejected under 35 U.S.C. 102(a) as being anticipated by Wanthal et al (Interlaminar reinforce Composites Development For Improved Damage Tolerance).

Regarding claims 1, 4, 9, and 12, Wanthal et al discloses a method of bonding a 3-D “pi” textile preform to form joints. The method includes provide a 3-D “pi” textile preform, i.e. a base with two legs, infused with resin and staged, the base of the preform is placed on a debulked lay-up, the web is inserted into the clevis and the assembly is bagged and cured. (Page 13, lines 9-22)

Regarding claim 5, the components jointed by using the “pi” textile preform in Wanthal et al is perpendicular to the each other. (Figure 8)

Regarding claim 8, Wanthal et al discloses the preform is a dry material. (Page, lines 27-29)

Claims 1, 4, 5, 8, 9, and 12 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter. Wanthal et al (Interlaminar reinforce Composites Development For Improved Damage Tolerance) discloses a method of bonding a 3-D "pi" textile preform to form joints. The method includes provide a 3-D "pi" textile preform, i.e. a base with two legs, infused with resin and staged, i.e. an adhesive, the base of the preform is placed on a debulked lay-up, the web is inserted into the clevis and the assembly is bagged and cured. (Page 13, lines 9-22)

3. Claims 1, 4-6, 8, 9, 11, 12, 15, and 16 rejected under 35 U.S.C. 102(e) as being anticipated by McKague, Jr. (U.S. 6,374,570).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1, 4, and 12, McKague, Jr. discloses a method of joining dissimilar materials to form a structural support member. The method includes providing a woven or braided fiber preform, infusing the preform with thermosetting resin, which act as adhesive to bond together dissimilar materials, placing the preform at the desired joining location on a plate or panel, joining additional panel or plate to the preform and curing the resin or adhesive. (Col 3, lines 4-17, Col 4, lines 1-22, and Figures 5-8)

Regarding claim 5, McKague, Jr. discloses a second component to be perpendicular to the first component after attachment. (Figures 4-6)

Regarding claim 6, McKague, Jr. discloses a second component to be parallel to the first component after attachment. (Figure 4-6)

Regarding claim 8, McKague, Jr. discloses the preform was previously unimpregnated. (Col 4, lines 14-15)

Regarding claim 9, McKague, Jr. discloses the preform has a base and two legs extending from the base. (Figure 4-6)

Regarding claims 11, 15, and 16, McKague, Jr. discloses the assembly is vacuum bagged and a vacuum is pulled under the bag. (Col 4, lines 8-15)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al (Interlaminar reinforce Composites Development For Improved Damage Tolerance) in view of Derujinsky (U.S. 4,900,048).

Wanthal et al is silent as to the adhesive have a tensile strength less than 6500 pounds per square inch. However, one in the art would appreciate that any adhesive with a tensile strength less than 6500 pounds per square inch can be used to bond the

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joints together and such adhesive are well known and conventional as shown for example by Derujinsky. Derujinsky discloses a method for forming a seamless composite bicycle frame. The method includes impregnating cloth, i.e. textile, with an epoxy composition with a tensile strength of about 6000 pounds per square inch. (Col 5, lines 24-53)

It would have been obvious to one skilled in the art at the time the invention was made to provide an adhesive with a tensile strength of less than 6500 pounds per square inch as disclosed by Derujinsky in the method of Wanthal et al to provide a joint to adequately resist stresses without failure and keeping the material and weight of the joint at a minimum.

6. Claims 6, 7, 10, 11, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al (Interlaminar reinforce Composites Development For Improved Damage Tolerance) in view of Bersuch et al (3-D Composite in Primary Aircraft Structure Joints).

Regarding claim 6, Wanthal et al is silent as to orienting the components parallel to each other. Bersuch et al discloses the components are oriented parallel to each other in some 3-D joints. (Figure 1)

It would have been obvious to one skilled in the art at the time the invention was made to oriented the components in any position such as parallel direction as disclosed by Bersuch et al in the method of Wanthal et al to allow the components to be properly mounted.

Regarding claim 7, Wanthal et al is silent as to fastening the other components to the preform using fasteners. However, using fastener to fasten components to the preform is well known and conventional as shown for example by Bersuch et al. Bersuch et al disclose using fasteners to mount other components to the preform. (Figure 4)

It would have been obvious to one skilled in the art at the time the invention was made to mount other components to the preform using fasteners as disclosed by Bersuch et al in the method of Wanthal et al to provide an increase in the durability of the damage tolerance of the structure.

Regarding claim 10, Wanthal et al is silent as to the preform has a thickness of at least textile layers. However, providing a preform with at least two textile layers is well known and conventional as shown for example by Bersuch et al. Bersuch et al discloses the preform is form by passing Z-fibers through the layers of the fabrics.

(Page 4, Col 1, line 11 to Col 2, line 3)

It would have been obvious to one skilled in the art at the time the invention was made to provide the preform with at least two or more textile layers as disclose by Bersuch et al in the method of Wanthal et al to provide a preform with improves interlaminar shear strength.

Regarding 11, 15, and 16, Wanthal et al does disclose placing the preform and components into a bag and cured. (Page 13, lines 13) Wanthal et al is silent at to applying a vacuum to the bag and applying forces to the preform and components

during curing. Bersuch et al discloses applying vacuum and pressure to the preform and components during curing. (Figure 2)

It would have been obvious to one skilled in the art at the time the invention was made to provide a vacuum bag and applying a pressure across the outer surface of the preform as disclosed by Bersuch et al in the method of Wanthal et al to provide a smooth and uniform joint.

7. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wanthal et al (Interlaminar reinforce Composites Development For Improved Damage Tolerance) in view of Sheahen et al (Robust composite Sandwich Structures) and Derujinsky (U.S. 4,900,048)

Regarding claim 17, Wanthal et al discloses a method of jointing two components together using a 3-D preform. The method includes provide a T-shape preform, infusing the preform with adhesive, and a tool coated with release agent was use to maintain the geometric shape, and placing the preform and components in a bag and autoclave to cure. (Page 7, lines, 1-5 and Page 13, linesn7-22) Wanthal et al is silent as to the adhesive has a tensile strength of less than 6500 pounds per square inch and securing the other components to the leg of the preform with a fastener. Sheahen et al discloses method of forming joints with preforms. The method includes using a fastener to mount other components to the leg of the preform. (Page 7, Col 1, lines 36-47 and Figure 5)

It would have been obvious to one skilled in the art at the time the invention was made to mount other components with fasteners to the preform as disclosed by Sheahen et al in the method of Wanthal et al to provide a strong and secure mounting

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for high load requirement. Sheahen et al is silent as to the adhesive has a tensile strength of less than 6500 pounds per square inch. However, one in the art would appreciate that any adhesive with a tensile strength of less than 6500 pounds per square inch can be used to form the joints. For example, Derujinsky discloses a method for laminating plastic core. The method includes impregnating cloth, i.e. textile, with an adhesive composition with a tensile strength of about 6000 pounds per square inch. (Col 5, lines 26-53)

It would have been obvious to one skilled in the art at the time the invention was made to provide an adhesive with a tensile strength of less than 6500 pounds per square inch as disclosed by Derujinsky in the method of Wanthal et al to provide a joint to adequately resist stresses without failure and keeping the material and weight of the joint at a minimum.

Regarding claims 18 and 19, Wanthal et al discloses using a tool coated with release agent to maintain the geometric shape, which would distribute the inward force across the preform. (Page 13, lines 12-13)

8. Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKague, Jr. (U.S. 6,374,570) as applied to claims 1 and 12 above, and further in view of Derujinsky (U.S. 4,900,048).

McKague, Jr. as disclosed above is silent as to the adhesive have a tensile strength less than 6500 pounds per square inch. However, one in the art would appreciate that any adhesive with a tensile strength less than 6500 pounds per square inch can be used to bond the joints together and such adhesive are well known and

conventional as shown for example by Derujinsky. Derujinsky discloses a method for forming a seamless composite bicycle frame. The method includes impregnating cloth, i.e. textile, with an epoxy composition with a tensile strength of about 6000 pounds per square inch. (Col 5, lines 24-53)

It would have been obvious to one skilled in the art at the time the invention was made to provide an adhesive with a tensile strength of less than 6500 pounds per square inch as disclosed by Derujinsky in the method of McKague, Jr. to provide a joint to adequately resist stresses without failure and keeping the material and weight of the joint at a minimum.

9. Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKague, Jr. (U.S. 6,374,570) as applied to claim 1 in view of Bersuch et al (3-D Composite in Primary Aircraft Structure Joints).

Regarding claim 7, McKague, Jr. as disclosed above is silent as to fastening the other components to the preform using fasteners. However, using fastener to fasten components to the preform is well known and conventional as shown for example by Bersuch et al. Bersuch et al disclose using fasteners to mount other components to the preform. (Figure 4)

It would have been obvious to one skilled in the art at the time the invention was made to mount other components to the preform using fasteners as disclosed by Bersuch et al in the method of McKague, Jr. to provide an increase in the durability of the damage tolerance of the structure.

Regarding claim 10, McKague, Jr. is silent as to the preform has a thickness of at least textile layers. However, providing a preform with at least two textile layers is well known and conventional as shown for example by Bersuch et al. Bersuch et al discloses the preform is form by passing Z-fibers through the layers of the fabrics.

(Page 4, Col 1, line 11 to Col 2, line 3)

It would have been obvious to one skilled in the art at the time the invention was made to provide the preform with at least two or more textile layers as disclose by Bersuch et al in the method of McKague, Jr. to provide a preform with improves interlaminar shear strength.

Allowable Subject Matter

10. Claims 3, 14, and 20-23 are allowed.

The following is an examiner's statement of reasons for allowance and reason for indicating allowable subject matter: The claims recite a method for bonding two components. The method includes providing a woven fabric preform, infusing the preform with an adhesive with a peel strength greater than 15 pounds per linear inch, adhering one surface of the preform to one surface of the component, curing the adhesive and attaching the second components to the preform. Wanthal et al discloses a method of bonding a 3-D "pi" textile preform to form joints. The method includes provide a 3-D "pi" textile preform, i.e. a base with two legs, infused with resin and staged, the base of the preform is placed on a debulked lay-up, the web is inserted into the clevis and the assembly is bagged and cured. (Page 13, lines 9-22) However, Wanthal et al does not disclose infusing the preform with a resin with a peel strength

greater than 15 pounds per linear inch. Derujinsky discloses a method forming a seamless composite bicycle frame. The method includes impregnating cloth, i.e. textile, with an epoxy composition with a tensile strength of about 6000 pounds per square inch. (Col 5, lines 24-53) However, Derujinsky does not disclose the adhesive has a peel strength greater than 15 pounds per linear inch. A search of the prior art of record did not disclose reference or references with the recited feature.

Response to Arguments

11. Applicant's arguments filed July 22, 2003 to claims 1, 12, and 17-19 have been fully considered but they are not persuasive.

12. In response to applicant's argument that the Wanthal et al is not prior art, Wanthal et al presented the paper to those in the art most concerned with the claimed subject matter. The declaration submitted by Stephen D. Owens, co-author of the Wanthal et al "Interlaminar Reinforced Composites Development for Improved Damage Tolerance," has been considered. However, the points raised by Mr. Owens only suggest the attendees must have certain certifications. There is nothing on the record which would preclude the information presented from being considered under 35 U.S.C. 102(a). The fact that the technology is useful in other areas is not relevant. The invention is considered to be known by others prior to the filing of this instant invention in this country as shown by Wanthal et al and Wanthal et al is considered a prior art by applicant's own admission.

13. In response to applicant's argument that Wanthal et al does not disclose an adhesive the examiner must interpret the claim in the broadest meaning, which includes

any resin or adhesive can be used. The examiner depended on Wanthal et al to provide the teaching of providing a preform, infusing the preform with a resin and stage the resin to a B-stage state, locating the preform onto the debulked, IM7/977-3 prepreg tape lay-up, and curing the resin, (Page 13, lines 9-13) where the B-stage state of the resin is not fully cured, but remained tacky and capable of wetting and flowing into depressions as shown for example by Delgadillo (U.S. 4,091,125). Delgadillo teaches thermoplastic resin can be heated to a temperature below the curing temperature, i.e. B-stage range, where the resin assumed a softened tacky condition and capable of wetting and flowing into depressions. (Col 4, lines 42-53)

In response to applicant's argument of Bersuch does not disclose infusing a preform with an adhesive, the examiner depends on Bersuch to provide the teaching of attaching a second component perpendicular to the first component, where Wanthal et al provided the teaching of infusing a preform with resin, which serve as an adhesive.

The combination of Wanthal et al and Bersuch discloses applicant's invention.

In response to applicant's argument of Sheahen does not disclose infusing a preform with an adhesive, the examiner depends on Sheahen to provide the teaching of using a fastener to secure the other components to the preform, where Wanthal et al provided the teaching of infusing a preform with resin, which serve as an adhesive. The combination of Wanthal et al, Sheahen, Bersuch, and Derujinsky discloses applicant's invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sing P Chan whose telephone number is 571-272-1225.

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The examiner can normally be reached on Monday-Friday 7:30AM-11:15AM and 12:15PM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard D Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chan Sing Po
spc

R. Crispino

RICHARD CRISPINO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700